

The Precision Medicine Initiative

By Robin Arnette

During this year's State of the Union address, President Obama announced a \$215 million funding commitment to the National Institutes of Health (NIH), the U.S. Food and Drug Administration, and the Office of the National Coordinator for Health Information Technology, to find health solutions for all Americans.

The investment will allow physicians and researchers to take a closer look at specific differences in people's genes, microbiomes, environments, and lifestyles. Through this knowledge, they hope to move the concept of tailored treatments for individuals into everyday practice.

Linked Video

[Watch Jo Handelsman, Associate Director for Science in the Office of Science and Technology Policy, describe the Precision Medicine Initiative and its significance. \(1:44\)](#)

This new enterprise is called the [Precision Medicine Initiative](#) (<http://www.nih.gov/precisionmedicine/>)

, and it will support a national network of scientists, focused on cancer in the short-term, and a whole range of health issues and diseases in the long-term. It is a new model of research, built on developments in biomedicine and technology. As NIH Director Francis Collins, M.D., Ph.D., and National Cancer Institute Director Harold Varmus, M.D., wrote in their [New England Journal of Medicine opinion editorial](#)

(<http://www.ncbi.nlm.nih.gov/pubmed/25635347>)

, "We believe that the time is right for this visionary initiative, and the NIH and other partners will work to achieve this vision."

Two-phased approach

Biomedical research has made great strides in deciphering the genomic signatures of cancers and developing targeted therapies, but much work remains. In phase one, the Precision Medicine Initiative seeks to develop a deeper understanding of many more cancers, while expanding clinical trials with novel designs. In addition, building a cancer knowledge network that stores all of this data in a usable, digital format will help scientists figure out drug resistance and how to combine therapies for maximum effect.

Once this foundation is established, the second component of the Precision Medicine Initiative will begin. Scientists plan to recruit more than a million Americans to participate in research studies, to better assess disease risk, understand what causes disease, and predict optimal therapies and prevention.

NIEHS and National Toxicology Program Director Linda Birnbaum, Ph.D., believes bringing together biologists, physicians, technology developers, data scientists, and especially the public will lead to groundbreaking discoveries.

"Can you imagine what we could achieve if we all pull together and contribute our time and expertise to the process?" Birnbaum asked. "We could finally see the full impact of precision medicine on human health."





“What is needed now is a broad research program to encourage creative approaches to precision medicine, test them rigorously, and ultimately use them to build the evidence base needed to guide clinical practice,” wrote Collins, above, and Varmus in the New England Journal of Medicine. (Photo courtesy of NIH)



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